Corres. and Mail
BOX AF

RESPONSE AFTER FINAL
EXPEDITED PROCEDURE
ART UNIT 1642

PATENT
Attorney Docket No.: CIT1150-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	William J. Dreyer	Art Unit:	1642
Serial No.:	09/366,458	Examiner	A.L. Holleran
Filed:	August 3, 1999		
Title:	METHOD OF DETERMINING CELL OR TISSUE TYPE BY TRANSMEMBRANE RECEPTOR IDENTIFIERS		

Box AF
Commissioner for Patents
Washington, D.C. 20231

TRANSMITTAL LETTER

Sir:

Transmitted herewith for filing in connection with the above-identified application, please find the following:

1. Response to the Final Office Action mailed November 5, 2002, (6 pages);

2. Return Receipt Postcard.

CERTIFICATION UNDER 37 CFR §1.8
I hereby certify that the documents referred to as enclosed herein are being deposited with the United States Postal Service as first class mail on this date, **February 4, 2003**, in an envelope addressed to: Attention Box AF, Commissioner for Patents, Washington, D.C. 20231.
Carrie E. Bickle *(Name of Person Mailing Paper)*
(Signature) February 4, 2003 *(Date)*

Gray Cary\GT\6333041.1
104662-158312

No fee is deemed necessary in connection with the filing of this paper. However, if a fee is required, the Commissioner is hereby authorized to charge any additional required fees associated with the filing submitted herewith, or credit any overpayments, to Deposit Account No. 50-1355. A duplicate copy of this Transmittal Sheet is enclosed.

Respectfully submitted,

Date: February 4, 2003

By: Richard T. Tinkham Reg. No. 37,643
for:
Lisa A. Haile, Ph.D.
Registration No. 38,347
Telephone: (858) 677-1456
Facsimile: (858) 677-1465

USPTO Customer Number 28213
GRAY CARY WARE & FREIDENRICH LLP
4365 Executive Drive, Suite 1100
San Diego, California 92121-2133

RESPONSE AFTER FINAL
EXPEDITED PROCEDURE
ART UNIT 1642

PATENT
Attorney Docket No.: CIT1150-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants:	William J. Dreyer	Art Unit:	1642
Serial No.:	09/366,458	Examiner	A.L. Holleran
Filed:	August 3, 1999		
Title:	METHOD OF DETERMINING CELL OR TISSUE TYPE BY TRANSMEMBRANE RECEPTOR IDENTIFIERS		

#
16/ns
IC)
2-12-

Box AF
Commissioner for Patents
Washington, D.C. 20231

RESPONSE TO THE FINAL OFFICE ACTION

Sir:

Responsive to the Office Action mailed November 5, 2002 (Paper No. 14), consideration of the following remarks is respectfully requested.

Applicant and Applicant's representative gratefully acknowledge the Examiner's attention to this case, and the helpful comments made in telephone interview held February 3, 2003.

CERTIFICATION UNDER 37 CFR §1.8
I hereby certify that the documents referred to as enclosed herein are being deposited with the United States Postal Service as first class mail on this date, **February 4, 2003**, in an envelope addressed to: Commissioner for Patents, Washington, D.C. 20231.
Carrie E. Bickle *(Name of Person Mailing Paper)*
(Signature) February 4, 2003 *(Date)*

Gray Cary\GT\6332329.1
104662-158312

Claims 1 to 10 and 50 to 64 are pending. The Examiner's reconsideration and removal of the rejections under 35 U.S.C. § 112, second paragraph, is gratefully acknowledged.

The rejection of claims 1 to 10 and 50 to 64 under 35 U.S.C. 103(a) as allegedly obvious over Nef and Nef, or Drutel et al., or Vanderhaeghen et al, or Mombaerts et al, in view of Janeway and Travers, or Stites et al., or Schlossman et al., or Seed et al., or Wysocki et al., or Aruffo et al., or Heller et al., or Foote is respectfully traversed.

Claim 1 is directed to a method of obtaining a composition substantially enriched in a specific progenitor cell type by contacting a sample of cells with at least one binding agent specific for a serpentine cell surface receptor indicative of a specific progenitor cell type or lineage such that the binding agent binds specifically to a progenitor cell or progenitor cells expressing the receptor in the sample; and separating the cell or cells bound by the binding agent from the sample, thereby obtaining a composition substantially enriched in a specific progenitor cell type. Claims 2 to 10 and 58 to 60 depend, directly or indirectly, from claim 1.

Claim 50 is directed to a method of obtaining a composition substantially enriched in a specific cell type by contacting a sample of cells with at least one binding agent specific for a serpentine cell surface receptor such that the binding agent binds specifically to a cell or cells expressing the receptor in the sample; separating the cell or cells bound by the binding agent from the sample, thereby obtaining a cell or cells expressing the receptor; and further separating from the cell or cells expressing the receptor a cell or cells that express at least one additional marker, thereby obtaining a composition substantially enriched in a specific cell type. Claims 51 to 57 and 61 to 64 depend, directly or indirectly, for claim 50. In comparison to claim 1, the method of claim 50 further includes a step of separating from the cell or cells

expressing the receptor, a cell or cells that express at least one additional marker (compare claim 2).

It is stated in the Office Action that Nef and Nef describe olfactory marker positive cells, methods of identifying such cells, and that such cells have olfactory and neurologic function, and further describe analyzing the DNA in such cells; that Drutel et al. similarly describe olfactory marker positive cells, including a function of such cells in olfactory development, sperm chemotaxis, and odor and taste recognition; that Vanderhaeghen et al. similarly describe olfactory marker positive cells, including an olfactory function of such cells; and that Mombaerts et al. similarly describe olfactory marker positive cells, including neurologic and olfactory functions of such cells, but that the above references do not describe sorting or enrichment of cells expressing such olfactory markers. The secondary references are provided as variously describing methods of such sorting or enrichment of cells. It is maintained in the Office Action that one of ordinary skill in the art would have been motivated to use the methods of the secondary references to enrich for cells expressing an olfactory receptor as described in the primary references in order to test for olfactory, sperm chemotaxis, or neurologic function.

Applicant maintains, however, that one of ordinary skill in the art would not have been motivated to combine Nef and Nef, or Drutel et al., or Vanderhaeghen et al., or Mombaerts et al. with the secondary references because there is nothing in any of the primary references that would motivate one to separate such cells from a sample. It is stated in the Office Action that the motivation to combine the references would be to enrich for cells expressing an olfactory receptor in order to test for olfactory, sperm chemotaxis, or neurologic function. However, as Applicant has previously pointed out, there is nothing in any of the references to suggest such testing. It is alleged in the Office Action that one of ordinary skill would have been motivated to combine the references so as to isolate the cells to test for olfactory function, sperm chemotaxis,

or neurological function. However, there no indication as to what type of olfactory or neurologic function could be tested using cells such as heart muscle cells (Drutel et al.) or notochord (Nef and Nef), or how, for example, one in the art would perform such tests. As such, it is submitted that such reasons as provided in the Office Action would not have provided sufficient motivation for one or ordinary skill in the art to combine the secondary references with at least the Drutel et al. and the Nef and Nef references.

Applicant further submits that, even if for argument sake, it is considered that one in the art would have combined the references, the artisan would not have had a reasonable expectation of successfully isolating cells expressing serpentine cell surface receptors. For example, as discussed with the Examiner, Drutel et al. describe expression of mRNA encoding an olfactory receptor in rat heart. However, there is no teaching or suggestion in Drutel et al., or in the secondary references, as to how one in the art would proceed to prepare a suspension of heart cells from a heart, in order to then further isolate heart cells expressing an olfactory or other serpentine receptor. Further in this respect, none of the primary references even describes identifying a serpentine cell surface receptor (i.e., a polypeptide). Instead, each of the primary references describes nucleic acid based assays, and the identification of genomic DNA or mRNA. As such, it is uncertain whether any of the cells described in the various references actually expresses serpentine cell surface receptors. Thus, even if it would have been obvious to try to isolate cells expressing a serpentine cell surface receptor using a binding agent that binds specifically to a progenitor cell expressing the receptor, one of ordinary skill in the art, viewing only the cited references, would not have had a reasonable expectation of isolating such cells because the cited references, either alone or in combination, do not teach or suggest cells expressing serpentine cell surface receptors, but only describe cells that express a olfactory receptor mRNA or contain olfactory receptor genes.

It is noted that claims 50 to 57 and 61 to 64 require, in addition to contacting a sample of cells with a binding agent that binds specifically to a cell expressing a serpentine cell surface receptor, and separating cells bound by the binding agent, "further separating from the cell or cells expressing the receptor", cells that express at least one additional marker (see claim 50). As such, this method requires first separating cells based on their expressing a serpentine receptor, then further separating from the first separated cells, cells that further express at least one additional marker. It is submitted that there is nothing in the cited references, when considered alone or in combination, any teaching or suggest to first isolate from a sample of cells, those cells expressing a serpentine cell surface receptor, then isolating from the cells expressing the serpentine receptor, those cells that express at least one additional marker.

For the above reasons, Applicant maintains that one of ordinary skill in the art would not have been motivated to combine the cited references. However, even if the artisan would have been so motivated, the artisan would not have had a reasonable expectation of successfully isolating cells expressing a serpentine cell surface receptor (claims 1 to 10 and 58 to 60), or of isolating cells expressing a serpentine receptor, then further isolating from those cells, cells that express at least one additional marker (claims 50 to 57 and 61 to 64). Accordingly, it is respectfully requested that the rejection of claims 1 to 10 and 56 to 64 under 35 U.S.C. § 103 be removed.

In view of the above remarks, it is submitted that the claims are in condition for allowance, and a notice to that effect respectfully is requested. The Examiner is invited to contact Applicants' undersigned representative if there are any questions relating to this application.

Please charge any additional fees, or make any credits, to Deposit Account No. 50-1355.

Respectfully submitted,

Date: February 4, 2003

By: [signature] Reg No. 37,643
Lisa A. Haile, J.D., Ph.D.
Reg. No. 38,347
Attorney for Applicant
Telephone No.: (858) 677-1456
Facsimile No.: (858) 677-1465

USPTO Customer Number 28213
GRAY CARY WARE & FREIDENRICH LLP
4365 Executive Drive, Suite 1100
San Diego, California 92121-2133